



(19)



Europäisches Patentamt

European Patent Office

Office européen des brevets



(11)

EP 1 108 799 A3

(12)

EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
21.11.2001 Bulletin 2001/47

(51) Int Cl. 7: C22C 23/02

(43) Date of publication A2:
20.06.2001 Bulletin 2001/25

(21) Application number: 00125394.7

(22) Date of filing: 04.12.2000

(84) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE TRDesignated Extension States:
AL LT LV MK RO SI

(30) Priority: 03.12.1999 JP 34421099

(71) Applicant: Hitachi, Ltd.
Chiyoda-ku, Tokyo 101-8010 (JP)(72) Inventors:
• Nakamura, Kiyomi
Hitachi-shi, Ibaraki 316-0035 (JP)

- Hirane, Teruo
Hitachinaka-shi, Ibaraki 312-0011 (JP)
- Uchida, Toshio
Hitachinaka-shi, Ibaraki 312-0012 (JP)
- Abe, Teruyoshi
Hitachi-shi, Ibaraki 319-1225 (JP)

(74) Representative: Beetz & Partner Patentanwälte
Steinsdorfstrasse 10
80538 München (DE)

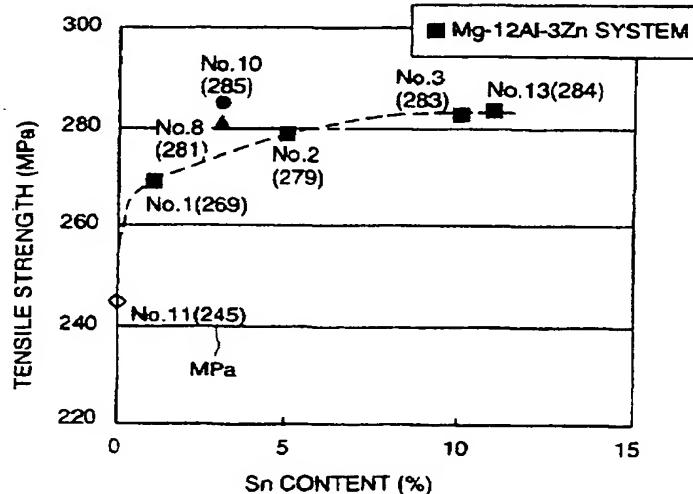
(54) High strength Mg based alloy and its uses

(57) An object of the present invention is to provide a high strength Mg based alloy and an Mg based casting alloy having a good fluidity and a good mechanical prop-

erty, and a molded article using the alloy.

A high strength Mg based alloy, which contains 2 to 20 % of Al by weight; 0.1 to 10 % of Zn; 0.1 to 15 % of Sn and 0.05 to 1.5 % of Mn.

FIG. 6





Eur pean Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 00 12 5394

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.)
X	US 2 000 115 A (MAGNESIUM DEVELOPMENT CORPORATION) 7 May 1935 (1935-05-07) * page 1, left-hand column, line 8 - right-hand column, line 28 * * claims 2,5 *	1,2,8-21	C22C23/02
X	GB 2 058 837 A (MAGNESIUM ELEKTRON LTD) 15 April 1981 (1981-04-15) * page 1, line 46 - line 52 *	1,2,9-21	
X	* page 2; examples AT65,AT62,AT61,ATM61QUARTER,AT6HALF; table 1 *	6,7	
A	* claims *	3	
X	US 1 942 041 A (MAGNESIUM DEVELOPMENT CORPORATION) 2 January 1934 (1934-01-02) * page 1, line 7 - line 80 *	1,2,9-21	
X	* page 1, line 26 - line 68; claims *	7	
X	GB 265 299 A (F. A. HUGHES & COMPANY LTD) 7 February 1927 (1927-02-07) * page 3, line 38 - line 54 *	1,2,9-21	
X	GB 1 291 553 A (NORSK HYDRO A.S.) 4 October 1972 (1972-10-04) * page 1, line 9 - line 75 * * page 2, line 13 - line 46 * * claims 1-4,7-10; figure 1 *	1,2,8-21	C22C F16K
A	* claims *	3	
X	US 3 653 880 A (GITLESEN GUNNAR) 4 April 1972 (1972-04-04) * column 1, line 6 - column 2, line 45 * * claims 1,3,4; figure 1 *	1,2,8-21	
A	* claims *	3	
		-/-	
The present search report has been drawn up for all claims			
Place of search	Date of completion of the search	Examiner	
MUNICH	21 September 2001	Patton, G	
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone	T : theory or principle underlying the invention		
Y : particularly relevant if combined with another document of the same category	E : earlier patent document, but published on, or after the filing date		
A : technological background	D : document cited in the application		
O : non-written disclosure	L : document cited for other reasons		
P : intermediate document	& : member of the same patent family, corresponding document		



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 00 12 5394

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.)
A	GB 596 102 A (RUPERT MARTIN BRADBURY) 29 December 1947 (1947-12-29) * page 1, line 14 - line 29 * * page 1, line 40 - line 42 *	1-21	
A	EP 0 575 796 A (NORSK HYDRO TECHNOLOGY) 29 December 1993 (1993-12-29) * column 2, line 53-57 *	1-21	
A	DE 19 34 617 A (NORSK HYDRO-ELEKTRISK KVAELSTOFAKTIESELSKAB) 15 January 1970 (1970-01-15) * page 2, line 31 - page 3, line 17; claims *	3	
A	US 4 675 157 A (DAS SANTOSH K ET AL) 23 June 1987 (1987-06-23) * claims *	3	
X	* column 6; example 5; table I *	6,7	
X	US 1 680 262 A (GANN JOHN A) 7 August 1928 (1928-08-07) * page 1, line 63 - line 74; claims 3,5 *	6,7	TECHNICAL FIELDS SEARCHED (Int.Cl.)
X	GB 1 113 304 A (M A N TURBO G M B H) 15 May 1968 (1968-05-15) * page 1, line 36 - line 38; claim 1 *	6,7	
X	GB 690 786 A (DOW CHEMICAL CO) 29 April 1953 (1953-04-29) * page 3; examples 1-3 * * claims *	6,7	
<p>The present search report has been drawn up for all claims</p>			
Place of search	Date of completion of the search	Examiner	
MUNICH	21 September 2001	Patton, G	
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			

ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.

EP 00 12 5394

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

21-09-2001

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
US 2000115	A	07-05-1935	NONE			
GB 2058837	A	15-04-1981	AU BE DE ES ES FR IL IN IT JP JP JP NL NO SE SE US	534059 B2 885284 A1 3034938 A1 495152 D0 8106943 A1 2465789 A1 61075 A 153086 A1 1133118 B 1027140 B 1545870 C 56102547 A 8005217 A 802765 A ,B, 452779 B 8006476 A 4332864 A		05-01-1984 16-01-1981 16-04-1981 01-09-1981 01-12-1981 27-03-1981 30-12-1983 26-05-1984 09-07-1986 26-05-1989 28-02-1990 17-08-1981 23-03-1981 20-03-1981 14-12-1987 20-03-1981 01-06-1982
US 1942041	A	02-01-1934	NONE			
GB 265299	A	07-02-1927	NONE			
GB 1291553	A	04-10-1972	NONE			
US 3653880	A	04-04-1972	NONE			
GB 596102	A	29-12-1947	NONE			
EP 0575796	A	29-12-1993	AT CA DE DE EP JP JP NO US	145014 T 2097983 A1 69305792 D1 69305792 T2 0575796 A1 2939091 B2 6073485 A 932135 A ,B, 5501748 A		15-11-1996 11-12-1993 12-12-1996 15-05-1997 29-12-1993 25-08-1999 15-03-1994 13-12-1993 26-03-1996
DE 1934617	A	15-01-1970	NO DE	119501 B 1934617 A1		25-05-1970 15-01-1970
US 4675157	A	23-06-1987	DE EP JP	3564702 D1 0166917 A1 1681772 C		06-10-1988 08-01-1986 31-07-1992

ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.

EP 00 12 5394

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

21-09-2001

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 4675157 A	JP 07-08-1928	3044135 B JP 61096046 A JP 3236442 A US 4718475 A	05-07-1991 14-05-1986 22-10-1991 12-01-1988
US 1680262 A	07-08-1928	NONE	
GB 1113304 A	15-05-1968	DE 1521145 A1	10-07-1969
GB 690786 A	29-04-1953	NONE	

EPO FORM P0435

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

THIS PAGE BLANK (USPTO)